



E-Z-FORM

Individual Survival Home

**(EZFISH)
Owner's Manual**



**E-Z-Form Laboratories
Pleasant, Utah**

Notice

The following materials are presently temporarily out of print:

Shell Assembly Guide

Electrical Systems Installation Guide

Plumbing Systems Installation Guide

Environmental Control Systems Installation Guide

and the **EZFISH Parts List**

These materials are essential to the proper installation and construction of your new **E-Z-Form Individual Survival Home**. We know you appreciate that the demand for the **EZFISH** has been very high and that we have done everything in our power to provide the best kit available to every customer. Rest assured that you will receive this literature via the same shipper from whom you received the shell construction powder, shielding lead, reinforcing steel, and other parts. If you have any questions or problems, do not hesitate to call us at our toll-free number: **1-800-EZE-FISH**.

E-Z-Form Laboratories, Inc.
Pleasant, Utah

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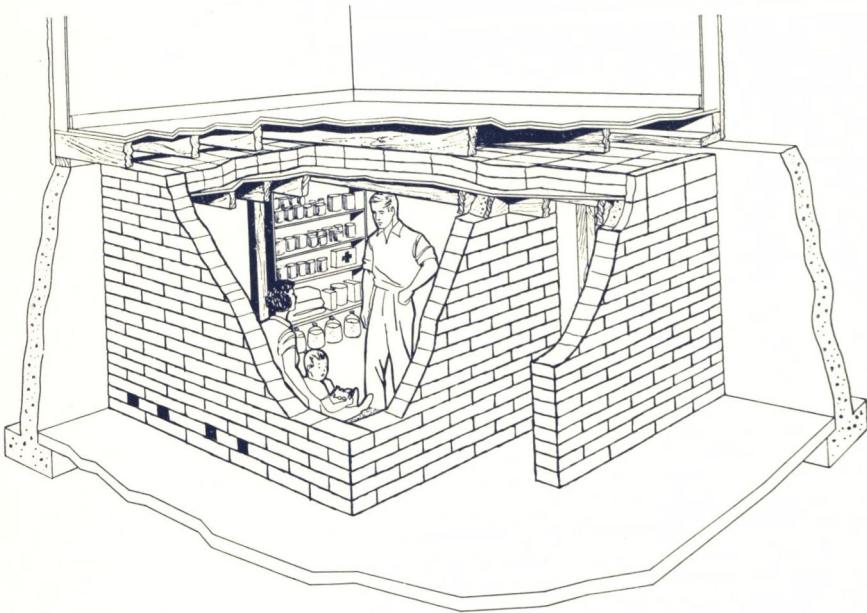
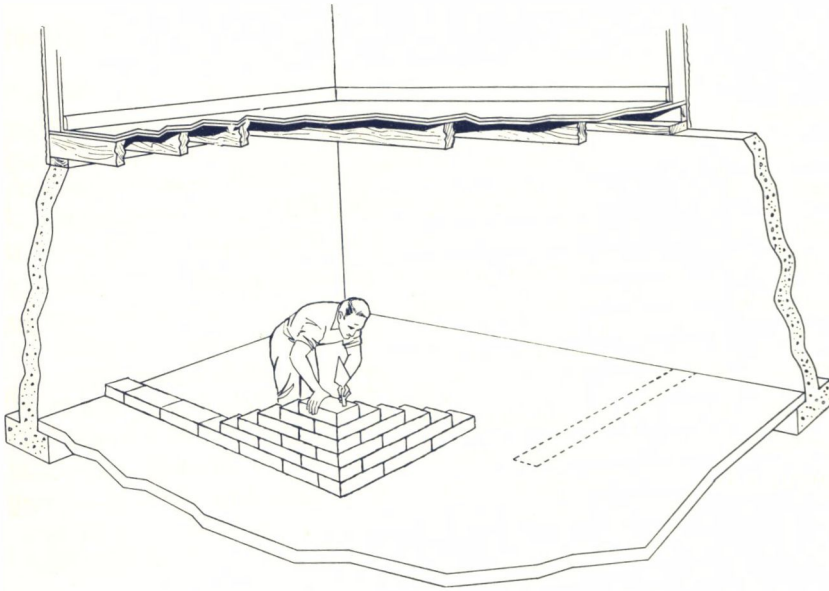
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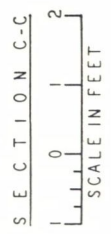


Introduction

Congratulations on your choice of survival homes. We here at **E-Z-Form** believe the **EZFISH** to be the best survival environment available at any price. Our shelter has been designed to provide the reliable security that today's global threats demand. We have spared no expense in search of the best materials available. We have created the largest existing body of research on the topic of individual survival. We have applied our knowledge by collecting the included materials into an easily assembled and thoroughly dependable survival environment. We have also provided meaningful enhancements to the basic unit in the form of matching all-terrain transportation, a general data computer and local radar unit, a remote cargo robot, and a sealed system hostile environment suit.

Combined, the EZFISH system and its auxiliary components provide a cozy nest that anticipates the most hostile of situations and provides safe protection from the elements, be they natural or man-made. We have provided the features and functions that are most desirable to make survival of 'the virtual destruction of the world as we know it' not only practical but also comfortable and even enjoyable.

With all that is included, you are well on your way to enjoyment of your new home. However, the rest is up to you. We include this handy assembly manual and usage guide to gently pilot you through the construction and use phases of our product. All of the advice presented here has been pre-tested in our Micro-Holocaust Labs in Pleasant, Utah. We guarantee that you will find the EZFISH to be perfectly safe and convenient to use in any post nuclear exchange environment or we will cheerfully refund your full purchase price.



Chapter 1

Study the E-Z-Form Kit

As with any ambitious project, your work will seem to go much faster if you begin with a clear idea of the size of the task and with confidence that you understand what the job will require. All of the materials, instructions, and tools that you will need have been included. If anything that you need does not seem to be enclosed, feel free to call us at our Pleasant, Utah office and we will be happy to carefully recap your parts list by phone. If your problem cannot be resolved in this manner, we can provide access to field representatives for on-site problem resolution. These representatives are available at a nominal charge.

In addition to this, (The Owner's Manual), there should be five other written enclosures. They are: 1) the **Parts List**, 2) the **Shell Assembly Guide**, 3) the **Electrical Systems Installation Guide**, 4) the **Plumbing Systems Installation Guide**, and 5) the **Environment Control Systems Installation Guide**. Before you begin any part of the EZFISH assembly, be sure to carefully read each of these enclosures. Read them right now.

Now let's underscore some important features discovered while reading the **Parts List** and **Installation Guides**. First of all, you have discovered that each of the parts required to complete EZFISH is enclosed. If you did not find all of the parts and tools which you will require, call us immediately at 1-800-EZE-FISH, and we will give you any assistance you need.

Reading the **Shell Assembly Guide**, you learned the importance of stress-testing each succeeding layer of the shell before continuing to the next. You learned how to apply the pre-measured mix to your sturdy structure. In this guide you will learn how to detect structural defects that arise as time goes on and how to make little spot repairs to the shelter roof.

In the **Electrical Systems Installation Guide**, you learned about Ohm's Law and how black is for hot and white is for ground unless there is a red wire or maybe a green one. You learned how to maintain the internal generators. In this manual you will learn how to connect the internal systems to outside power supplies that you provide.

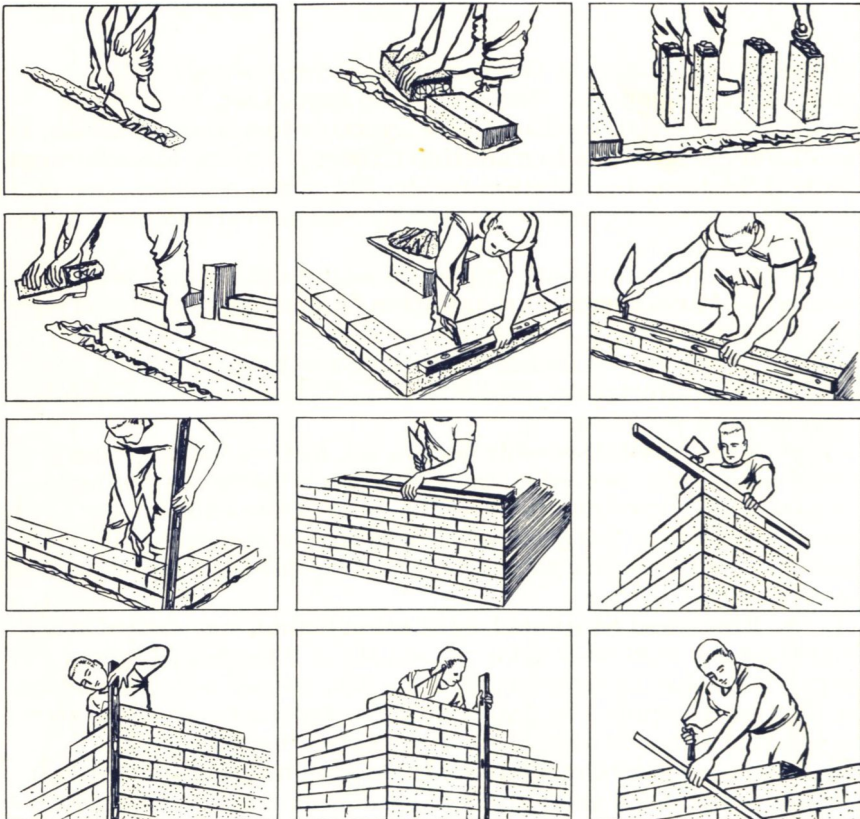
Reading the **Plumbing Systems Installation Guide**, you learned how to install the integral cistern and water purification system. In this manual, you will discover how to correct cistern leaks without contamination of the water supply and how to connect the water system to pressurized water that you provide.

Finally, in the **Environment Control Systems Installation Guide**, you learned how to install the heating and cooling systems, and how to test for unfortunate coolant leaks. In this guide, you will learn how

to clean the refrigerator, how to change the air conditioning filter, and how important it is to keep the door to the outside closed at all times. You will also learn to make ongoing repairs to these systems.

If you did not clearly understand any of what was presented in any of the Installation Guides, please feel free to call us immediately at 1-800-EZE-FISH to discuss with our qualified installation assistance personnel those areas which are unclear. They will be happy to discuss any aspect of installation and are available during regular office hours.

You are now prepared! Select your sturdy structure and assemble your EZFISH shelter.



Chapter 2

Selecting a Sturdy Structure

The EZFISH shelter kit contains everything that is needed to turn an ordinary basement, extra room, garage, even a well-built tool shed, into a complete, sealed environment with air and water purification, radiation shielding, and blast reinforcement. If you follow the simple instructions, you will find building your new hardened home to be easy and enjoyable. The first step in beginning assembly is to pick a nice spot. The EZFISH shell is designed to enhance any existing sturdy structure which has been outfitted with: 1) Electrical wiring, 2) Fresh water plumbing, 3) a septic tank sewage system, and 4) a sturdy roof.

The wiring should be in good repair and designed to provide at least 100 amp service to the structure. If the wiring system is designed to provide greater than 100 amp service, it will be limited to 100 amp service after installation of the EZFISH kit. The tap for a secondary external power source should be installed even if you have no external generator at present. If you decide at some later point to add an external generator, the EZFISH shell is not easy to modify.

You should know where the fresh water plumbing enters the structure. A test and filter unit will be installed at this point. If you are building the structure for the EZFISH, you might consider burying the incoming water line deeper than local building codes usually require. This is especially true if you live in a warm climate where the weather is seldom below freezing. Shallow inlet lines may cause the test unit to indicate fallout contamination that does not actually exist. Your structure must be equipped with a full bath. If it is not, have complete plumbing facilities installed. The bath tub will probably be usable for bathing only rarely but it provides a practical place for scrub wash-downs. As with the electrical tap, you should install the provided secondary water supply tap even if you have no auxiliary well at present. This will allow you to change your water supply plan in the future without breaking the EZFISH shell.

The septic system should be provided with a clean-out plug inside the structure. This special feature will allow you to clear some drainage problems without leaving the shelter. A second clean-out conveniently placed is also advisable. Important. The sewage disposal system must be of the local passive type, (septic tank and drain field), with no connection to central sewage disposal systems. Nuclear blast may pressurize city sewer systems to a degree capable of damaging the EZFISH shell seals and harming occupants.

The structure roof need not be watertight but it should be able to withstand the weight of the shell material until it has hardened. If you are not sure about the strength of your roof, see *Appendix D* of the "Shell Installation Guide," "Minimum Specifications for Underlying

Structure.' The roof should be of sufficient pitch to guarantee good run-off but not so steep as to weaken the ability of the shell to withstand horizontal stress from blast pressures.

Finally, the structure should be of a convenient size. The best way to decide if your building is the right size is to cut out the blocks in the back of the "Shell Assembly Guide" that match what you intend to install in the shelter. Place these blocks into a 1/36-scale drawing of your structure. Be sure to place each unit in a position that will allow you to make use of it in the finished shelter.

Units that you must include are:

- 1) Cistern:** the 125 gal. cistern can be placed in a corner.
- 2) Fresh water filter:** should be very near the shell wall.
- 3) Wash-down water filter and re-circulator:** near wash-down area.
- 4) Air exchange and vacuum pump unit:** must be near the shell.
- 5) Steam electric generator:** near the fuel bin for stoking.
- 6) Pantry:** the fresh vegetable pantry must be accessible.
- 7) Meat freezer:** major electrical load.
- 8) Workshop:** storage for wood, metal, parts, and projects.
- 9) Fuel bin:** for wood, coal or any liquid combustible.
- 10) Wash down foyer:** to remove contaminant dust from self, etc.

In addition you may want to include:

- A)** A small garage for the optional All Terrain Vehicle.
- B)** Garage space for cartage trailers.
- C)** Garage space for the optional robot cargo unit.
- D)** More space in the wash-down foyer for environment suits.

Normally, you will want to place all storage areas near the shell wall to add the benefit of additional radiation shielding. Material storage areas should be convenient to the drive-in doors and the wash-down foyer must be convenient to both the drive-in doors and the hatch.

We strongly advise that you place the generator near the fuel bin. If you have the optional automatic coal stoker, you must follow the instructions included with the stoker when placing the generator and fuel bin. Remember that the stoker must be removed to fire the generator with oil or wood.

Chapter 3

Maintaining the EZFISH

There are six basic areas of the EZFISH that might require occasional inspection and possibly maintenance. These are the shell, the workshop area, the pantry, the cistern, the conditioning and refrigeration system, and the electrical system.

The pre-mixed materials provided with the EZFISH kit are designed to make construction of the shell a simple and fool-proof experience, and you should expect your shelter shell to give you many years of carefree service. There are, however, some things that you should know about the possible stresses to which the EZFISH might be exposed. Some of these fall into the 'usual' category. 'Usual' stresses include snow load, rain, change of temperature with season and even near-hurricane force winds. Your EZFISH shelter is fully warranted against any damage which is caused by normal environmental stress as long as the damage is beyond what might be considered normal wear and tear of aging.

In addition to these 'usual' stresses, other more severe stresses are possible. These include such 'Acts of God' as hurricanes, tornadoes, severe flooding, and lightning. Also, in the event of certain unforeseeable circumstances, the EZFISH may be exposed to severe thermal shock, severe physical shock, extreme wind load, near complete vacuum, very high air pressure, and quake. These unfortunate stresses would normally only occur during exposure to nuclear weapon detonation which, of course, could only be expected to occur during 'Acts of War.'

No company can insure or guarantee its product against 'Acts of God' or 'Acts of War,' but you should know that we do sympathize with the unfortunate user who experiences difficulties of this type. If you follow these simple step-by-step instructions, you can easily restore the most damaged shelter shell to a pristine, like-new condition.

The EZFISH shell is designed to protect you. It is of high mass material that should stop most of the harmful ray emissions typically found around nuclear blasts. The simple layering of lead mesh and steel reinforced concrete is easy to maintain and difficult to damage severely.

Between the inner and outer mass shells is the vacuum sponge. This spongy wall layer is evacuated to the outside to prevent contaminated dust from collecting in the EZFISH.

Damage to the inner or outer mass shells will cause leakage of excess air from inside or outside of the shelter into the sponge layer. This leakage will cause the vacuum pump to work less efficiently than it must to insure safety within the shelter. In cases where the leak is adjacent to living quarters, it may allow higher radiation within the shelter than is tolerable. In cases where the leak is adjacent to storage areas, the danger of radiation or contaminated dust is lessened, but stores may be contaminated. In cases of extreme leakage, the shelter

may be invaded by insects, mice, rats, and other pests, all of which will certainly cause immediate damage to stores and which also can be expected to 'track in' contaminated dust. Ultimately, the general health of creatures exposed to environmental radiation will probably be poor. Such creatures are likely to carry disease and so may increase the problem of possible infection.

It is important to inspect all storage areas regularly to insure the integrity of the shell. If damage is found, the shell should be patched immediately. Extra material has been provided for repair purposes. There should be enough extra material for several repair jobs.

In order to patch the shell, first prepare the area to be fixed. Scrape any loose material from the crack or hole and wet the area thoroughly. Following the mixture instructions in your "Shell Assembly Guide," make a generous amount of cement slurry. Paint the slurry all around the break and then re-apply shell material as instructed in your "Shell Assembly Guide" in the section called 'Changing existing shells.' Re-inspect the break to make sure that the repair is total and that there are no other breaks. Shell breaks usually result in destruction of Contamination Pump parts. Failure to adequately repair shell damage will result in the destruction of whatever parts are replaced until shell repairs are adequate.

After confirming that shell repairs are complete, find pump parts in the shelter storage bin marked 'Parts' and repair the pump.

If your shelter is equipped with the optional data computer, you may disregard the instructions above about shelter inspection. The data computer will automatically inform you if shelter shell damage is detected and you have available parts to repair the vacuum pump. Important! The data computer will assume that no repairs are possible and WILL NOT inform you of shelter damage if no parts are available for pump repair! It is a very good idea to always keep plenty of parts on hand.

One final note on shelter integrity. The EZFISH has a high recovery, low exchange shell designed to handle large exterior stress. Because the shell is low exchange, it cannot vent internal pressures as well as conventional structures. To you this means that even the boiling of water inside the shelter may result in higher inside air pressure. Open fires will result in rapid exhaustion of available fresh air and partial vacuum. These conditions can be uncomfortable. Finally, explosions inside the shelter will almost certainly cause concussion and high pressurization which can harm or kill occupants. Be especially careful with hazardous materials that might cause open combustion or explosion. Explosions can be expected to damage the shelter seal extensively.

In the most popular building plan, the EZFISH workshop area is placed outside of the main living quarters of the EZFISH shelter. When the workshop is so placed, it is inside of the blast protection boundary but outside of the conditioned environment. Because the workshop may only be used occasionally, it is important to schedule regular inspections of its blast shell. Damage to the shell will not jeopardize the safety of the air inside the shelter, but may allow pest intrusion into the

workshop. Remember that anything that migrates from the outside to the inside of the shelter without thorough washing will cause accumulation of hard-to-remove contaminant dust. Air and pests should be considered to be such harmful migrants.

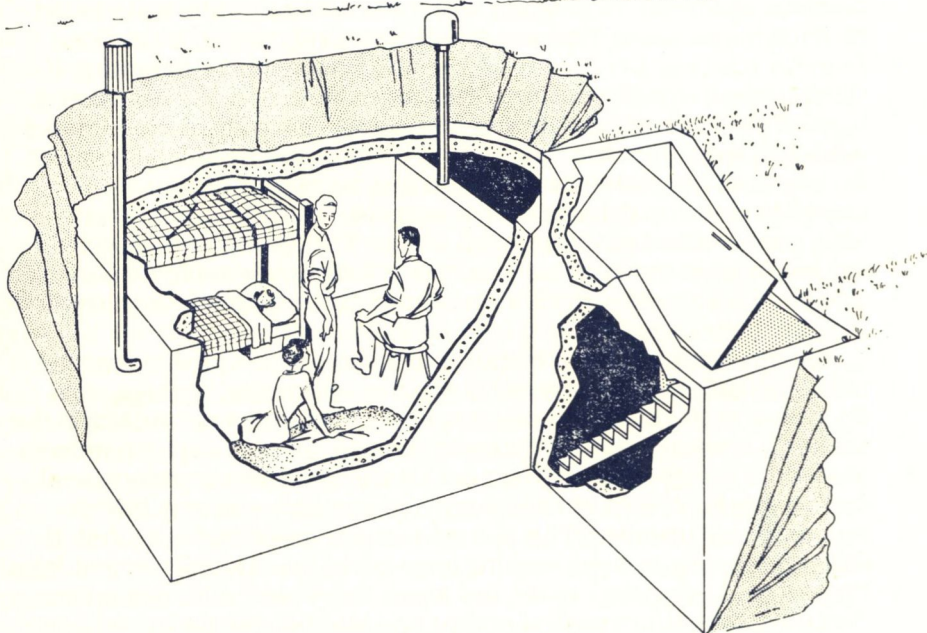
The pantry, like the workshop, deserves special attention when inspecting the shell for structural soundness. Because the pantry is a pest's delight, even small cracks here invite trouble. Pesticides cannot be used in the EZFISH because the air exchange rate has been minimized to protect against migrant unconditioned air from outside. Chemical poisons used inside the EZFISH are almost certain to be detrimental to human occupants. No provisions exist to halt accumulation of such poisons within the shelter. It is safe to use boric acid at any time as long as it is not dusted freely into the air. You may use most pesticides only until the shelter is sealed.

Your shelter's cistern has an associated active filter that effectively removes contaminants from water before storage. Although the cistern seldom leaks, this filter is a sophisticated pressure/vacuum reverse osmosis unit that may require occasional maintenance. Should the filter begin to leak clean, clear water with no scent or tint, the leak should be fixed immediately. This water will most likely drip at a slow rate from fittings near the cistern or from the bottom of the filter unit. If the filter leaks liquid that has a distinct scent or is cloudy or colored, turn off the filter immediately and repair it. This contaminated water will often spew from the filter unit in a high-pressure stream or spray. Do not cross the path of this spray. It may be of sufficient pressure to cause the water to damage skin. It may also be highly contaminated with concentrated environmental debris. The filter unit is especially subject to inlet and 'high-side' leakage following severe physical shock. The pump unit used in the filter is identical to the pumps used elsewhere in your shelter.

All temperature control within your shelter is provided by a single unit. This unit uses a universal pump that is identical to those used elsewhere in the home. Should you notice that temperature within the shelter is uneven or out of the desired range, check this pump immediately. Cold storage integrity and livable shelter temperatures depend on this pump. In very hot and very cold climates, you may have a booster pump installed. This second pump is identical to the first. If either pump proves to be working improperly, select a replacement from the storage bin marked 'parts' and repair the broken unit. Remember that the temperature control pumps provide cold-storage in addition to air conditioning and should be inspected regularly when the climate is moderate as well as in times of climate extremes.

The electrical system of your shelter has been, for the most part, sealed into the shelter shell. For this reason, most normal repairs will be somewhat impractical. The unique construction of the shelter shell makes the most common cause of gross electrical system failure almost impossible. Lightning strikes EZFISH homes frequently because of the attractiveness of the lead-layered shell and the height of the extended

radar dish but rarely causes damage to internal electrical systems. The unique grounding system provided with your shelter should protect you from any but a direct lightning strike. In the event of lightning damage to the electrical system, it is important that you turn off the shell pump and wear an environmental suit while making repairs. Always break the inside shell, not the outside, to gain access to damaged wiring. Always follow the instructions in the "Shell Installation Guide" when repairing the shell. If the electrical system is partially operable after lightning damage, you may wish to forego repairs altogether.



Chapter 4

Supply-Stocking the EZFISH

Your shelter is designed to provide storage for all of the comforts of any normal home. In addition, areas are reserved for those goods and tools that may be difficult to find outside after a nuclear exchange. The cistern can hold 125 gallons (1,000 pounds) of water and will auto-purify any water provided to it. Unfortunately, tests with early prototypes of the EZFISH demonstrated that contaminated water cannot be collected from the roof of the shelter. Rain water contains fallout silt in sufficient concentration to damage the osmotic membrane used in the cistern filter. In addition, the accumulation of silt occurs at too great a speed for the silt to be removed by the auto-flush cycle of the filter. Changes to the filter that could have remedied these problems would have rendered the filter too inefficient for use with the EZFISH. Because of the limitations in the silt-handling capacity, only water from a fast-running ground source or a deep well should be used in the cistern filter.

The pantry, if built as suggested, can hold as much as 600 pounds of dried or preserved fruits and vegetables. It uses passive desiccation to provide a low humidity for storage of semi-preserved goods. Because of the low humidity within the pantry, it should be kept closed whenever possible. The white crystals in the pantry are silica gel. This interesting material attracts moisture to its surface, thus removing water from the air. When the silica crystals appear to be slightly bluish, they should be removed from the pantry and heated on the hot plate until they are again white. The air of the pantry will have a parching effect on the skin.

Some stored foods should be kept cold instead of dry. For these you have the meat locker. It has an 800-pound capacity. This large capacity allows its occasional use for short-term storage of undressed meat. The locker pumps heat to the living space of the EZFISH during the winter and therefore will often be colder than it has been set. If the temperature in the locker is below its setting and it also becomes colder than the outdoor temperature, heat will be taken from outdoors. This makes the outdoor temperature the lower limit of the distance below its setting that the locker will normally operate. The locker is operating correctly if its temperature is at or below its setting and at or above the outdoor temperature. If the temperature in the locker is above its setting or below its setting and below the outdoor temperature, the conditioning pump may need service. If in doubt, clean the evaporator/condenser units thoroughly. If the problem continues, replace the conditioning pump. In the summer, the pump exhausts heat from both the locker and the living area to the outdoors. In this case, the locker should always be at its set temperature. Never place anything in the

locker in the winter that would be damaged by a hard-freeze to the outdoor temperature. The locker may require at least 48 hours to attain its set temperature when first turned on. For this reason, it is a good idea to bring ice and a temporary chest for storage of cold stuffs until the locker is cold enough to do the job. If your stay in the EZFISH proves to be extended, you will occasionally want to defrost the meat locker. The simplest way is to set the locker temperature switch to 'environment' which disables heat pumping from the locker entirely. After turning off the locker, open the door and place towels at its opening. Up to eight hours may be required to melt the frost completely. The process may be speeded by removing any large chunks of ice that can be loosened from the walls and disposing of them. Under no circumstances should you chip ice from the locker walls with any hard or sharp object. Such chipping could result in damage to the heat pump which might vent hazardous gasses into the locker or the living quarters. Following the defrosting cycle, the locker may require up to 24 hours to reattain its previous temperature. All goods in the locker should be removed before defrosting and not returned to the locker. You should be prepared to eat or discard everything that is in the locker when it is defrosted. Return of thawed goods to the locker can, in some cases, result in food poisoning.

The fuel storage area is designed to store up to 1,000 pounds of fuel. Facilities are provided to store liquid and solid fuel sources in the locker. Some precautions should be followed. Cans are supplied for storage of liquid fuels and gasoline. You should not store gasoline in the fuel bin. Any aromatic hydrocarbon will burn successfully in the engines used by the electric generators in both your home and, if you have it, your optional vehicle. These engines operate by combustion-steam-motion-electricity-output conversion and although they are not highly efficient, they require minimum maintenance and will burn anything that is combustible. The problem with aromatic hydrocarbons is that the locker does not seal tightly and any fumes leaking from fuel will escape into the living space. The seals that protect the locker and the living space from outside contamination are tight and will hold fumes in the living area where the fumes will concentrate to dangerous levels. Aromatic hydrocarbon fumes are carcinogens. In addition, some aromatic hydrocarbons cause dizziness, brain damage, and death in high enough concentrations. Finally, the fumes of most aromatic hydrocarbons will explode with a spark in the air, causing flash fire. Fuel oil, jet fuel, and truck diesel fuel are safe liquid hydrocarbons and can be stored in sealed containers in the fuel bin. Precautions should also be taken to limit accumulation of fine dust from coal storage in the bin. This dust is damaging to lungs, potentially explosive, and does not clean easily out of carpets.

Metal in various forms should be stored in the metal storage bin. This locker operates like the pantry and should be maintained similarly. On completion of the EZFISH, you should put all remaining lead sheet into storage in the metal bin for future repairs to the shell. The

bin is also excellent for storing all metals containing iron. The very low humidity prevents rust without further special protection. Two tons of metal can be stored in the metal storage bin.

A special nitrates locker has been provided for the storage of explosives. We do not encourage that firearms, gunpowder, dynamite, blasting gel, blasting caps, potassium, sodium or ammonium nitrates, mercury fulminate, mercury iodide, tri-nitro-toluene, nitrocellulose or glycerine, or any other unstable compounds that decompose explosively be kept within the shelter. We have made a small storage locker available for the storage of potassium nitrate high yield fertilizer. Because this compound is potentially explosive, care should be taken to avoid exposure of dry nitrate powder to spark, high temperature or open flame. Nitrate fertilizer is dangerous dry and difficult to use damp, therefore, we recommend that if it is stored for use, it should be stored dissolved in water. The nitrates locker will hold about 200 pounds of sensitive, potentially explosive, materials.

A lumber storage rack is suggested to store wood that can be used for any variety of construction projects. If equipped with the optional garage, your shelter can make a great workshop even before it is called on to protect you. The lumber rack can accommodate lumber to sixteen feet in length and will store about a ton of wood. If you prefer, the lumber storage area can be used to store uncut firewood. The EZFISH steam generator burns lumber as easily as it burns cord wood.

Remember that we have discouraged the use of firearms and the storage of explosives in your sealed system home. The circumstances for which the EZFISH is designed may create the need, however, to defend your home. To assist with defense of home, we strongly suggest that you lay up a store of arrows and a sturdy bow. Archery can provide an interesting and healthy hobby in addition to honing your skills should they ever be needed. No special provisions have been made for storage of bow and arrows, but you should have no trouble finding space in odd places for many dozen arrows and a bow or two.

At some point, we should point out the importance of a well-stocked first aid kit. The average family in this country maintains such a kit, however, studies show that the average kit is not kept well stocked for any real emergency. In the event of a global disaster of any kind, medicine can be expected to be made available to health institutions preferentially. To you, the individual, this means that you must adequately prepare your medicine chest before such a disaster occurs. If you fail to prepare properly, you will be stuck with whatever help nature can provide to you for pain relief, antibiotic aid, diet enhancement, and general medicinal care. This is a bleak prospect for all but the most ardent nature buff. Since most first aid kit owners depend on an old fishing tackle box to hold their first aid supplies, **WE HAVE MADE NO SPECIAL PROVISIONS TO INCLUDE FIRST AID MATERIALS WITH THE EZFISH KIT.** We trust our customers to take the wise approach to medical needs and provide a well-stocked first aid station in the shelter. In the event that this for any reason does not happen, we have

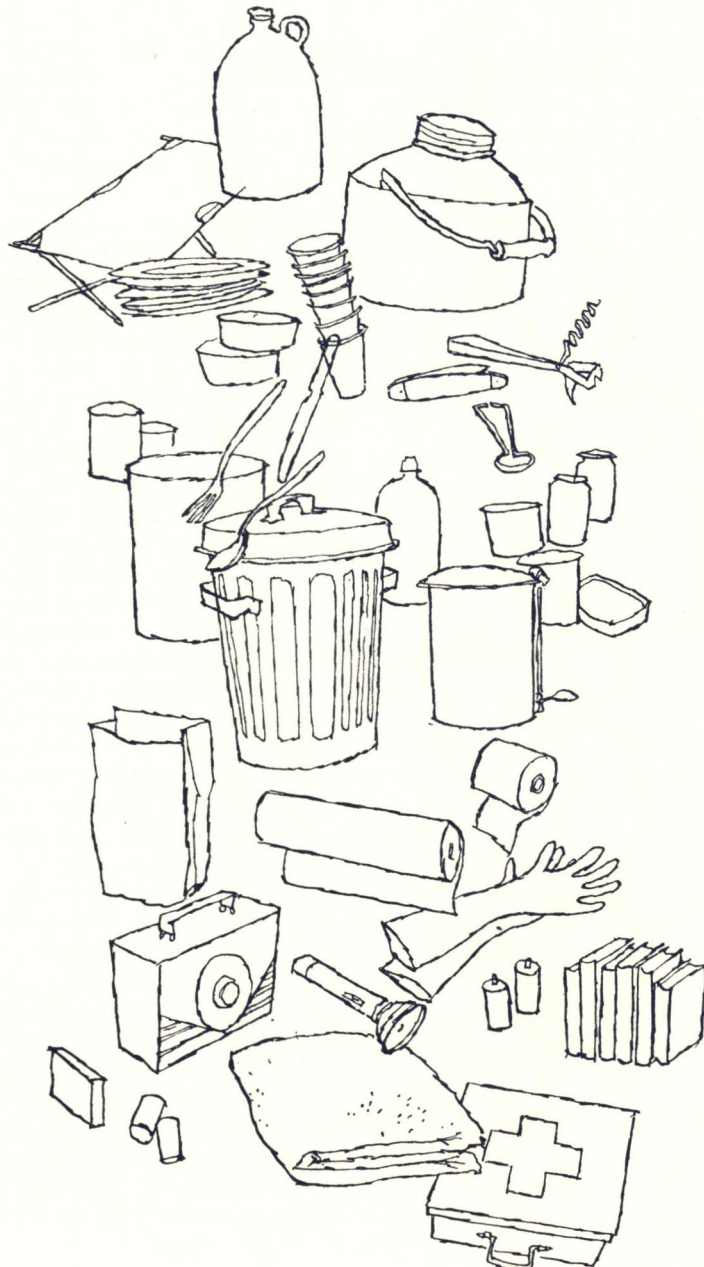
provided special dry storage for spices and herbs. If you do have a well-stocked medicine kit, this storage area will make a convenient place to keep it.

We have gone to great lengths to make the EZFISH simple to maintain. To this end, all power units depend on a specially-designed electric pump unit which can be used to move gas or liquid at a variety of pressures and flows. With this single pump on hand, you can repair 1) the shell evacuator, 2) the refrigerator/conditioner, 3) the robot drive motors, 4) the ATV drive motors, 5) the cistern filter, 6) the living space filter/circulator, and 7) the electric generator. In some cases, you will need to follow the simple directions supplied with the EZFISH universal pump to remove the pump impeller unit from the motor or to reconfigure the motor field orientation. Because you can use this pump for such a wide variety of repair jobs, we suggest that you keep a good supply of these optional parts on hand. Storage space for 200 such units is provided in the EZFISH plan. In the event that you decide not to purchase all 200 extra units, you can use the 18 square feet of floor space reserved for parts to spend odd moments playing hopscotch (a good rainy day exercise that we heartily recommend).

The optional ATV that we suggest you select for use with your shelter is equipped to tow a utility trailer. Almost any trailer can be used, but we suggest that a sturdy unit, capable of withstanding the same punishment as your ATV. You can make space for as many trailers as you like in your garage. Remember that extra garage space is always useful as workshop area and that once the shell is complete it is not easy to enlarge. We suggest that you provide at least as much space as you can find any reasonable use for.

In our layout suggestions, you may notice what seems to be a very large cloak closet near the entry hatch. This area is suggested to allow handling of contaminated suits within the shell. If you follow the construction plans for this area correctly, you will be creating an area where dirty suits can be hosed down and stored to dry. The water which drains from the hose-down area can be recovered and filtered into the cistern or it can be discarded outdoors. Although the proposed space could accommodate many suits for storage, we know that you will not want to pack it full of suits. We suggest that 20 to 30 of our optional environment suits should be more than sufficient for a single person's needs. On the other hand, torn suits are difficult to repair and you will probably want plenty of extra suits.

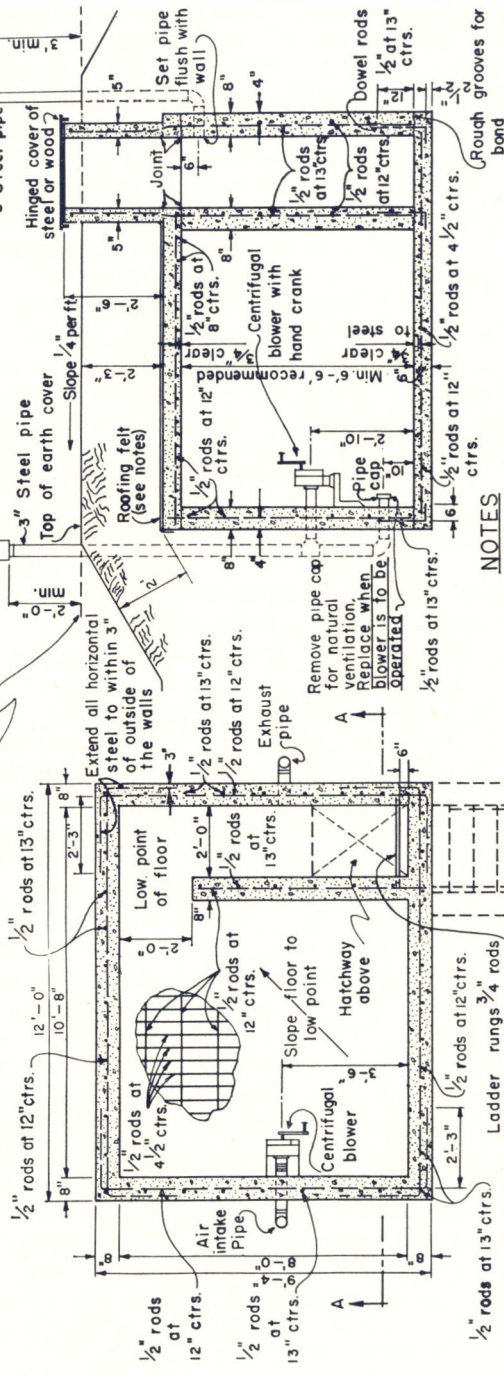
Remember that an unstocked shelter is an unprepared shelter. We must stress the importance of preparing properly for all once-in-a-lifetime opportunities. You have taken the first step in total preparedness for a brave new world. When you have finished construction of your new shelter, you will have taken the second step. The final step is the complete furnishing of your shelter with the supplies that will keep you comfortable and safe through whatever may befall. We stock a complete line of indefinite storage foodstuffs, special purpose vehicles,



Standard stationary exhaust head with screen

Air intake hood with screen (inside, Min. screen area 14sq. in.)

Alternate ground line



Sizes of rods and spacing same as shown on roof plan sheet 20f2

For alternate stairway see sheet 20f2

PLAN

SECTION A-A

SCALE OF FEET
0 1 2 3 4

NOTES

Water proof outside walls with 2 coats of hot applied asphalt paint.

Cover roof with 2 layers of roofing felt cemented to the slab and each layer with hot asphalt paint.

If bottom of shelter is below ground water, place 6 mils thick polyethylene film, or equivalent, before pouring base slab. Also cover side walls and lap film under roofing.

Splice film by overlapping and cementing. Hold film against walls when placing and compacting backfill.

Bevel all exposed corners of concrete $\frac{3}{4}$ " at 45°.

Chapter 5

What to Expect from the World

This is not a survival manual. During research for your shelter, we at E-Z-Form discovered a number of in-depth treatments of the problems of survival in hostile environments. A complete list of the available books on primitive hunting alone would require a list longer than this manual. We expect that you will want to purchase a number of the available texts.

No one can really tell you what to expect after any unprecedented occurrence, but there are a number of things that you should not expect. First, you are unlikely to open your shelter door and see an airless, lifeless, desolate plain. If the local damage in your area is this severe, you will die of suffocation even in a well-built shelter. It is also unlikely that all previously existing buildings will be leveled. In areas where the blast is great enough to level everything, fire storms starts fires that create intense heat and high vacuum in the effected area. Such 'chimney effect' burns can create more calories of heat than the primary blast that started them. They may be expected to turn soil and brick into glass, making even a shelter uninhabitable.

You shouldn't expect to see vastly-mutated monsters roaming your area, or even strange varieties of plant life. The most frequent effect of high-dosage radiation on living tissue is death. The most frequent effect in survivors is sterilization. Mutation is only possible in cases where radiation is low enough for the victim to survive the more dramatic possibilities and, even in these cases most mutations are non-viable. They die because they are not a random improvement over what already exists. It is probably true that many new genetic variations will arise after a major nuclear exchange, but discovery of these variations will require years of research by trained professionals. Most living things, when exposed to radiation, simply die.

This brings up two things that you should expect. First, the residual radiation levels will be too high to be healthy. Some of the energy of nuclear weapon blast spends itself by exciting normal matter to become radioactive. Some of the radioisotopes created by energy and particle emission are themselves fast radiators and will release the energy they have borrowed quickly. This matter usually begins its life as vapor or plasma. Very hot material which heat carries upwards at the blast sight. As this matter cools, it becomes 'hot fallout'—a dust that is dangerous and insidious. Because it can be very fine, this dust is capable of blowing through most filters, and, because it is radioactive, it can carry radiation around heavy shielding and emit it inside a shelter. In its worst case, fine fallout can lodge in lung tissue and reradiate energy and subatomic particles directly into the lung.

Secondly, there are the less immediately dangerous but potentially more lethal types of fallout. These particles radiate less intensely than their 'hot' cousins, but they radiate for much longer periods of time. In natural distribution, slow radiators will do little more than raise the background radiation level. This is not a healthy situation but will probably not be life threatening. The more likely problem is that certain plants and animals will concentrate on one or another of these 'newly common' isotopes because they are like some less dangerous version that the plant or animal needs. Some plants are known to prefer radioactive versions of iodine today. There is no way to predict the effects of dramatic changes in the balance of elemental isotopes but some species of plant and animal are likely to become dangerous for human consumption. The only safety from radiation is detection and avoidance. If you do not own a good Geiger counter, buy one and learn how to use it.

So, material, mostly dust, that radiates harmful stuff is your most dangerous threat. Your shelter will block radiation and dust. Your (optional) environment suit will provide the same service outdoors. It is important, though, to wash the outside of the suit immediately when it is brought into the shelter and to flush the shelter filters frequently. With time, the level of radiation outside the shelter will decrease. In any area that is inhabitable within the lifespan of the foodstuff in your shelter, reduction of radiation to reasonable levels can normally be expected within a number of months to a few years. Remember, though, that the amount of radiation from fallout depends on the accumulation of radioactive dust, and certain areas may concentrate the dust due to weather conditions.

After radiation, the next most likely threat is illness. Native plant and animal life (including human) is likely to be initially reduced due to direct exposure to primary radiation (bomb blast), heat damage, concussive shock, etc. Many plants and animals so affected are likely to sicken but not die. This condition of mass illness reduces resistance to natural environmental pressures. This means that normal illnesses are likely to be greatly increased due to weakening by bomb effects on the population. The most dramatic effect of a nuclear exchange and probably the most difficult to accept will be carnage and disease. The condition of high illness rate is likely to continue for many years beyond the exchange. You should mentally prepare now for a permanently changed world where sickness is normal.

So far we have looked mostly at what won't happen and what will be new. Now let's look at what will cease to exist. You can probably forget about central water distribution, central electricity distribution, central waste disposal, effective transportation, and meaningful government for at least a year or so—possibly indefinitely. A primary purpose of the EZFISH shelter is to leave the immediate effects of food, water, power, and guidance shortage to others while you enjoy the benefits of having planned well. Ground level and low altitude detonation of hydrogen weapons create enough brute physical shock to

disrupt everything that has been buried. This effect is much like what is caused by earthquake. Elevated temperatures caused by thermal radiation together with ground shock may destroy or severely damage pavement, but there is possibly an even greater threat to transportation.

Among the effects of atomic blast is something called magnetic pulse effect. This phenomenon is not clearly understood and the magnitude of magnetic pulse in a major exchange is unpredictable. The potential destructiveness of the magnetic pulse, especially from high altitude detonation, is substantial enough to suggest that a full exchange should start with some commitment to an initial blanket air burst. The idea of such a beginning is that if magnetic pulse proves to be a calculable damage factor, communication equipment would be severely damaged by the effect of the strong magnetic pulse. It is thought that perhaps five to twelve single warheads exploded at high altitude over North America could completely disable communications in the United States. If the magnetic pulse effect is at or near the predicted maximums, the effect could melt all coiled copper wire in the country. This means that all motors, generators, power transformers, ignition coils, telephones, televisions, radios, and transmitters of all types would melt or explode. Large iron masses might react to the pulse by suddenly lurching, perhaps not. There is no way to know exactly how to protect against the effect of magnetic pulse but ferric mass is a good start. The important thing about magnetic pulse is that, at its worst, it could completely destroy communication, transportation, and power generation/transmission nationally or even globally. This destruction would create a knot of zero capability the enormity of which might mean many years before cultural normalcy was restored.

Climate can be expected to be at least temporarily different than what could be called normal. There is some disagreement about what to expect the climatic change to be. One theory expects the minute particles of dust to obscure sunlight and cause surface temperatures on the planet to be lowered. This effect is called 'Nuclear Winter' and would result in bleak, dim conditions the world over for from several months to perhaps several centuries. The most obvious effect of Nuclear Winter would be to cause greater need for heating fuel. No so obvious is the effect on growing seasons. Some plants require a long minimum sunny season to grow properly. Others require year-round above freezing temperatures. Vegetation can be expected to migrate southward and some plant species will probably not adapt. These are doomed. Total food production will be reduced significantly. Even without the consideration of radiation sickness in plant life, there will be a food scarcity. If Nuclear Winter conditions continue for an extended period, changes will be seen in coastlines and snow cover expectations as water is held distributed on land for longer periods and in greater amounts.

It is possible that nuclear detonation will cause an altogether different effect. If the particles thrown into the air do not reflect sunlight but simply absorb it and reradiate heat, the effect might be to trap the

heat below the blanket and raise surface temperatures. This condition might then lead to a greater water evaporation rate which in turn would create a heavier cloud layer which might perpetuate the effect. All of this is called the 'Greenhouse Effect' and might raise surface temperatures twenty to two hundred degrees Fahrenheit. The warmer, moister climate might be compared to the primordial jungle or equatorial rain forest conditions. Depending on the amount of elevation in temperature, plant life could flourish or perish.

If the temperature increase due to Greenhouse Effect is great, conditions will probably destroy most of the life on the planet. There are only a few living things that can tolerate environmental temperatures above 212 degrees Fahrenheit and the energy cost to protect human life from elevated temperature would be prohibitive. We are aware of no organized preparation for such an event. If Greenhouse Effect is to be survivable, it must be minor—causing a less than fifty degree temperature elevation.

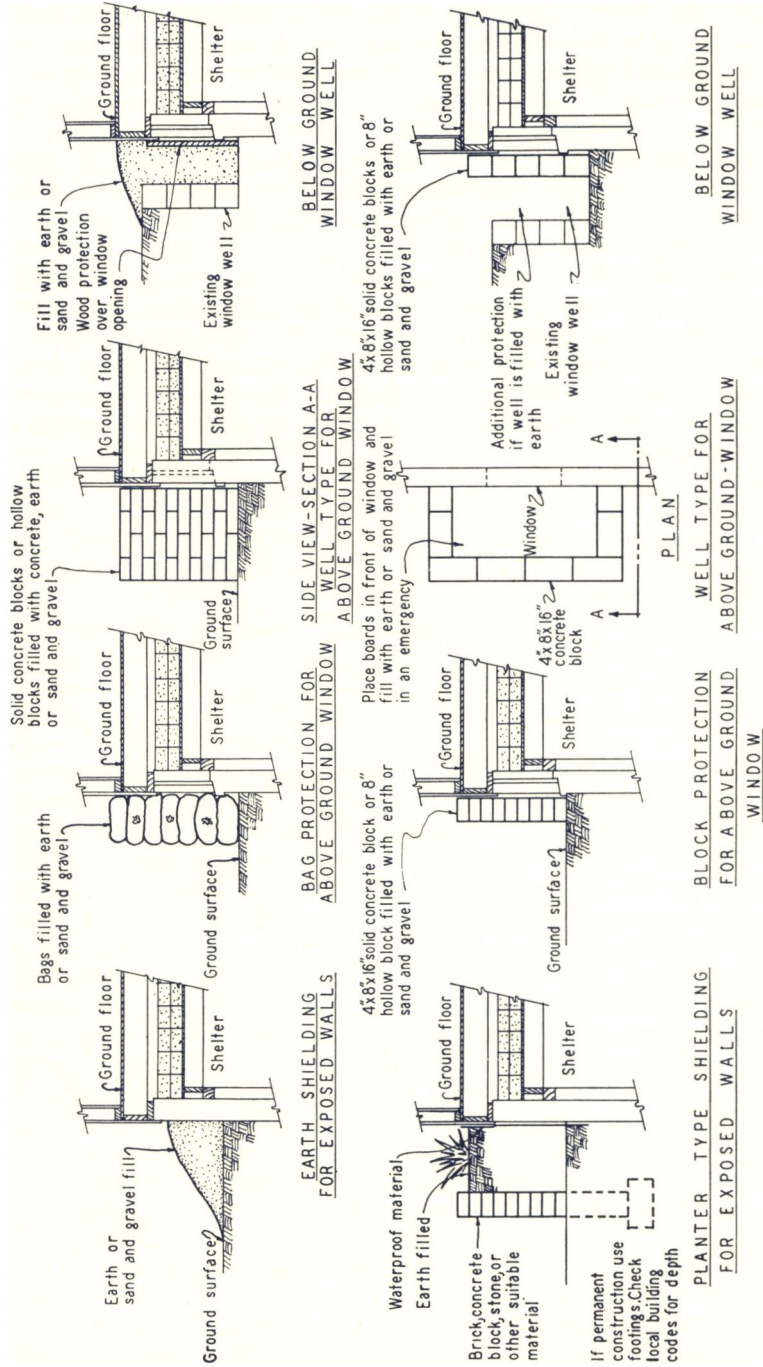
The EZFISH has been designed to consider everything we have shown you about the possibilities of social, cultural, and climactic change. In the event that bombs strike near your site, there will probably be little need for a shelter. The air will become impossible to filter, to cool, in short, to survive. If there is no local nuclear activity, you will face mostly a dramatic change in availability of goods, communication, transportation, and possible hostile climate. In this circumstance, you will need a secure, radiation resistant, isolating home. You will also need to begin meeting basic requirements for your continued personal well being.

Water falling from the sky should be considered unusable. Rain rinses particle fallout from the sky and can be expected to concentrate radiating particles. Fast flowing water is safer but only clear water should be considered and it should be tested before use. Running water has the advantage of having silted out some of the contained fallout but it should be remembered that rivers and streams are fed by snow and rain. Wells are by far the best source of water if they are available. Well water should still be tested but is likely to be free of contamination. Wells pose two problems. The first is that considerable power is normally required to pump the water to the surface and this power may not be available. Shallow wells will be of questionable value. Very deep artesian wells are by far the best conceivable water source. The second problem is the possibility that existing wells will be severely damaged by direct shock or extreme hydrostatic pressure at the well point. Damage to existing wells may render them useless. If you plan a well, be sure to use well casing of the heaviest variety locally available.

Food is the next priority, following air and water. This subject is too ambitious for a manual of this type and so we refer you to any of the now available survival guides. We can offer a few quick pointers. Wild vegetation is likely to be less affected by radiation than domestic crops that existed before the blast. Some seed should be saved for replanting.

Fish and game that are easy to catch and kill should be considered to be of questionable health. The best advice that we can offer is a simple solution to poor diet balance. Most of the survival manuals that we have seen attempt to balance diet from available foodstuffs. Actually, the most important need will be food energy and the next will be protein building blocks. The best insurance that the post-nuclear diet is well rounded is a large supply of vitamins. The vitamin store should be rotated on a regular basis. By the time a five year supply of vitamins is exhausted, transportation should be restored.

Remember that the major killing power of nuclear weapons does not lie in simple concussion. Whether directly or indirectly, most of the casualties of a full scale exchange will be radiation victims. To minimize the effects of radiation: wear an environmental suit, keep its outside clean, keep radioactive material out of your living environment, and stay indoors when practical. Sleep in a cave if you must but never sleep outdoors.



Note, Materials and methods shown for shielding aboveground windows can also be used for shielding exposed walls

Chapter 6

Specifications

The EZFISH kit comes with the following component units:

15 tons shell hardcoat, dry mix for 5 tons perforated lead sheet, 500 sq. ft. 4-4-8-8 remesh, 2000 lin. ft. #8 rebar, 1 shell evacuation fitting, 2 steel hatch kits, sealable, 1 steel blast resistant main door, 1 air inlet filter unit, sealable, 1 inlet filter blast resistant head, 1 air recirculator fitting, 1 water supply R/O filter system, 1 polyethylene cistern liner, 1 hot/cold insulation kit, styrene, 1 insulated locker door kit, 1 heat pump drive fitting, 3 heat pump evaporator units, 3 heat pump condenser units, 1 styrene wash-down chamber, 1 plumbing kit, wash-down chamber, 3 pressure/vacuum pump units, brick trowel, pointing trowel, hammer pipe wrench, large pipe wrench, small chalk line, measuring tape, 5 gal. grey enamel paint, 1 4-inch paint brush, 1 kit instructions, and plans.

Appendix A

Opt. All Terrain Vehicle

Because no one can guarantee the condition of the highways, you should consider the importance of an All Terrain Vehicle. At E-Z-Form, we try to anticipate all your post-nuclear needs and so we have developed the best in dependable, durable transportation—the E-Z-Form All Terrain Vehicle, (EZFAT). The EZFAT uses electricity for versatility which is generated by steam power. The steam is generated in a low pressure boiler which can be fired by wood, coal, oil, gasoline, kerosene, butane, or buffalo chips. In fact if it will burn, EZFAT can burn it. The boiler is simple enough to be repaired in a home workshop and the electric drive motors are the same universal type used in the EZFISH shelter.

EZFAT is a hearty spirit and is game to take any terrain that you would travel on foot. Broken ground is no problem. Shallow water is traversable. (Deep water will wet the firebox of the vehicle's boiler and should be avoided.) In short, even the most forbidding ground can be mastered with the help of your EZFAT vehicle.

In addition your EZFAT can also run on "People-Power." If the need should arise you can "walk" the EZFAT via a complex pedal mechanism. Leaving the comfort and security of the EZFAT is highly discouraged, and not all too safe. If you are unfortunate enough to run out of fuel, the EZFAT will automatically switch itself into "walking" mode until you can once again refuel. We strongly suggest that this mode of operation only be used under extreme emergencies. Although the EZFAT is constructed of ultra-light space-age polymers and spun steel, it is quite heavy. Travel under pedal power is likely to be very hard going.

The EZFAT is equipped with all of the required fittings to work properly in conjunction with the local data computer and the RADAR unit.

Appendix B

Opt. Data Computer w/RADAR

Without the optional data computer, your EZFISH is simply a safe place to spend the night. With the computer, you can command the world you survey. This handy gadget will allow you to accomplish tasks easily that would seem impossible without intelligent help. Best of all, the E-Z-Form data computer is easy and fun to use.

The secret of the flexibility and power of our computer rests in the way that we have made it available to you. With the E-Z-Form computer, you supply the machine and we furnish you with the program to turn it into a complete data acquisition tool, RADAR analysis tool, skill log, executive decision maker, and friend. With our software and your machine, you can direct the achievements of your active new life from the convenience and comfort of your favorite armchair.

The Data Display can be powered by the EZFISH power system, the EZFAT system, or sunlight. It provides useful information about the things that will be important to you in the absence of professional services.

At the top of the display, there are three clear indicators which help you to pace yourself. It is very important to sleep indoors and exhaustion can keep you from getting home. To prevent exhaustion collapse, we have provided an exhaustion indicator. This measures your month and warns you when it is time to seek shelter. When the indicator turns yellow, you should be to the halfway point in your monthly responsibilities. When the gauge turns red, you should be nine tenths of the way to completing the tasks you have selected.

Below the exhaustion gauge is a radiation level indicator. Like the exhaustion gauge, it helps you pace yourself. Radiation damage accumulation can be lowered by staying indoors, wearing an environmental suit, and avoiding high radiation areas. As with exhaustion, you should seek shelter as you near your maximum rad level.

The third gauge is a general health meter. It analyzes heart rate, respiration, and other vital signs to decide your overall health. This handy indicator should be used to decide whether dangerous activities should be undertaken and to determine when medical attention should be sought. Venturing outdoors in poor health can cause you to stumble over everything in your path.

Below your condition gauges there are three data areas. The left area shows different things, depending on your need. At its top, it usually shows you where you are. When you are outdoors it displays the terrain type of the surrounding 20 square miles or so. If this indication is shown in red, there is imminent danger of radiation poison from the area. When indoors, this area shows the number of the EZFISH you are in.

Below the terrain display is the options display. When indoors or when you ask for your options, the data display analyzes your skills, resources, and environment to provide a list of activities in which you might be interested. Often the display will suggest an option which is obviously available to you but which you have never considered.

The storage display replaces both the terrain and option displays. It is normally seen only indoors and normally shows what is stored in your EZFISH shelter. From time to time you may encounter something interesting outdoors which will be analyzed and displayed in the storage display.

The center of the data display is divided vertically into three parts. These are the area display, the homefinder and the date display. The area display may show local radar, long range radar map, social standings, or the view from indoors. Below the local display is a special direction finder that provides direction to home. This area shows arrows that point toward the place where you began the month. If you did not begin the month in a shelter, the homefinder will not point to a home. The type of terrain on which you began the month will be shown by the homefinder to remind you of this feature. Below the homefinder is a display of the date and your name.

To the right of the data display is the carriage display. This area will nearly always show what you are carrying on your person or on the optional EZFAT vehicle. When you use the optional cargo robot, this display will show what is loaded onto the robot.

At the bottom of the data display is the prompt display. This area is the most likely place to find suggestions about what you might want to do next. Often the area shows you how to use the data display and sometimes it informs you of events you might otherwise have not noticed. For instance, the prompt display will inform you if you are thirsty or are burning your lumber in lieu of fuel. It also tells you why an action that was offered by the option display can't actually be done. The problem will almost always be that there is too little time left in the month for the desired activity. The data computer interface allows you to control everything you do. It uses a normal keyboard. A list of the useful keys follows.

- F1** *Record of transactions with wandering neighbors.*
- F2** *Change progress displays between graphic and numeric depiction.*
- F3** *Turn on and off the little noises that your computer uses to remind you that something is interesting or important.*
- F4** *Turn on and off the radio in the EZFISH or EZFAT.*
- F5** *Send 'aloha' to a new neighbor who is equipped with the same computer.*
- F6** *Say 'aloha' to a neighbor who is leaving on a long voyage to some distant place, perhaps never to return.*

- F7** *List the skills acquired since enabling the computer.*
- F8** *Turn your attention to personal matters at the end of the current month, leaving further conquest for some future time.*
- F9** *Display the map provided by the local RADAR unit. This map displays an area of over 16,000 square miles. It has been computer enhanced to show your position and, in some cases, the positions of others.*
- F10** *Pause momentarily. Pressing any key on the computer console will continue you on your way.*
- “ESC” or Q** *Turn your attention to personal matters, leaving the quest for conquest of your world to some future point in time.*

Space Bar *When options are being presented by your computer, select the indicated option. When options are not being presented, request that the computer present options. Exit any transfer process. Note: When outside you must specifically request that the computer stop presenting options by selecting the ‘Move Again’ option. At home, you are always presented with your options. To go outside from your home, use the ‘Go Outside’ option. Even when options are being presented, the world continues around you.*

The E-Z-Form data computer presents options by analyzing your skills, the immediate terrain, the adjacent terrain, and the materials that are immediately available, whether in your vehicle or, if at home, both in your vehicle and in storage. As a notable exception, you will never be presented the option to ‘Eat Herbs’ unless you are carrying two herbs, even if you have two or more in store.

If you have a joystick, either button may be used as the Space Bar.

A-Z Are used when typing names. In this case only, the ENTER key is used to terminate the input. In other words, when a name is needed, type the name and press ENTER.

ENTER See A-Z.

Y and N Have the special use of allowing you to say “Yes” or “No” to a specific question presented by the computer.

Arrow keys, Number Pad keys The eight keys surrounding the ‘5’ key on your number pad are used to move the EZFAT vehicle. In addition, the up and down arrows are used when options are presented to select between options. Remember, to pick an option, use the Space Bar. The left and right arrows are used to move goods back and forth during transactions. Remember that transaction of goods takes time and work. If you have a joystick, it can be used in place of the number pad keys. Any key may be used as your shelter key. The EZFISH system allows anyone to enter an unoccupied shelter by simply using their computer to select the enter option. Once the shelter is entered, it records the shelter key stroke of the occupant and requires that any other computer holder must know the key of the occupant. In this way, the EZFISH

shelter will never deny you access to your shelter simply because you have forgotten your key. On the other hand, if you forget your key, it may deny access to others while you are inside. This system guarantees both access and security to the shelter user.

Appendix C

Opt. Cargo Robot

To ease communication between you and others who may own E-Z-Form products in your area, we have included an optional cargo robot kit. This kit uses signals from your occupied shelter to guide it to another shelter. The destination shelter must have an E-Z-Form shelter number registered to your local area. These shelters are usually numbered beginning with 0. Numbers increase by one to whatever is required to give each shelter a unique number. Following delivery of the loaded cargo, the robot will immediately return unaided.

If you attempt to use the 'Send Cargo' option and receive the response: "No One is Home," you have tried to send cargo to a shelter which may have been abandoned or is simply not occupied at the moment. You may be allowed to send cargo to an unoccupied shelter if you are the only inhabitant for some distance.

The cargo robot provides a convenient way to trade goods with other E-Z-Form home owners. The robot is capable of traversing any terrain and is self-fueled. We suggest that you make the most of your robot by sharing the fruits of your efforts with other inhabitants of your area. In the unhappy event that you find yourself alone in your area, you can use the robot to gather goods together in one convenient place.

The robot must be able to off-load goods without assistance. This need causes the robot to honor the expected limitations in EZFISH storage capabilities which have been published here. If what you place on the robot, combined with the storage of the destination shelter exceeds the destination shelter's storage limit, some goods will be lost. The robot will return but the excess materials will not.

Our tests with the optional cargo robot have proved it to be durable, dependable, easy to use. We heartily recommend its purchase to anyone who is serious about comfort following a nuclear exchange.

Appendix D

Opt. Hostile Environment Suit

No shelter would be quite complete without providing the eventual ability to go outdoors. We have provided the EZFISH with a well made door; however, you will probably wish to protect yourself on at least your first few trips outside.

To provide the very best in hostile environment protection, we suggest the E-Z-Form Hostile Environment Suit. The suit that we can provide to you is of the most complete and ready-to-wear variety. Our suit is even more flexible than it is durable and will provide you with the protection you need from potentially hostile post-nuclear-holocaust conditions.

With our suit, one size fits all. There is never any concern with proper fit or whose suit is whose. In fact, the color coordinated footwear slips right over your own shoes and either side fits any foot. You never again need to worry that your shoes are on backwards. In fact, if your own shoes are on backwards, in our suit no one will ever know!

The suppleness of our environment suit makes it like wearing no lead-lined suit at all, and the demand air exchange unit is great on rainy days to produce Darth Vader™-like sound effects. You will find the vinyl and lead gloves flexible and comfortable to wear. We don't guarantee that you can pick up a dime in them, but dimes won't be of much use to you anyway!

Our suit comes in high visibility orange and is complete with a back pack to carry home interesting things that you might find along your path. Its fast access zippers make it much easier to get into and out of than any hostile environment suit we have seen and it reduces average radiation exposure to 50 percent.

Its brilliant color makes it a bright accessory to the well furnished shelter and we would like to suggest that several hung together on the wall not only look smart but also provide a spare or two in case of damage to your favorite suit.

We would like to offer a little hint for use of the E-Z-Form Hostile Environment Suit. Everything in life has its price and we have spared nothing to make our suit the most flexible and convenient to use that you can buy at any price. Our hint to you is that, because our suit is so flexible, it is slightly sensitive to excess wear and tear and may rip if used roughly. Try to be careful not to contact any rough or hard surface while wearing the suit. It should be put on and taken off carefully and slowly. Treat it as you would treat your fine woolens and it will give you hours of enjoyable service.

